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BAYER MATERIAL SCIENCE LLC  
100 BAYER ROAD  
PITTSBURGH, PA 15205

EXAMINER
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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* MARTIN MELCHIORS, CHRISTOPH IRLE,  
JOACHIM PETZOLDT, and HEINO MULLER

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Appeal 2007-3742  
Application 09/928,853  
Technology Center 1700

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Decided: January 18, 2008

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Before CHARLES F. WARREN, CATHERINE Q. TIMM,  
and LINDA M. GAUDETTE, *Administrative Patent Judges*.

TIMM, *Administrative Patent Judge*.

DECISION ON APPEAL

1 Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's decision rejecting claims 1-7 and 9-11. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

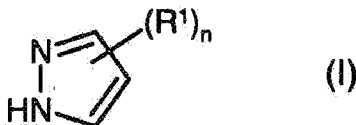
## I. BACKGROUND

The invention relates to a waterborne coating composition. Claim 1 is illustrative of the subject matter on appeal:

1. A waterborne coating composition comprising a physical mixture present in the form of a dispersion in water and optionally organic solvents and comprising

A at least one polyol having urethane groups and chemically bound hydrophilic groups, and

B at least one polyisocyanate having no chemically bound hydrophilic groups and which is blocked with pyrazole derivatives corresponding to formula (I)



wherein R<sup>1</sup> represents a (cyclo)aliphatic hydrocarbon radical having 1 to 12 carbon atoms and wherein n is an integer from 0 to 3,

wherein the molar ratio of blocked NCO groups of crosslinking agent B to NCO-reactive groups of polyol A or binder mixtures containing polyol A is 0.2 : 1 to 5: 1; and

wherein

the polyisocyanate B is added to the polyol A before the conversion thereof to the aqueous phase.

Appellants request review of the sole rejection remaining, namely, the rejection of claims 1-7 and 9-11 under 35 U.S.C. § 103(a) over Blum (US 5,126,393 issued June 30, 1992) in view of Hughes (EP 0 159 117 B1 published Jan. 27, 1993).

Appellants state that claims 2-7 and 9-11 stand or fall with claim 1 (Br. 2). Therefore, we decide the issues on appeal based on their relevance to claim 1.

## II. DISCUSSION

Claim 1 is directed to a physical mixture of a polyol A and polyisocyanate B dispersed in water. The specifically claimed polyisocyanate B is a pyrazole-blocked polyisocyanate.

The Examiner finds that Blum suggests forming a dispersion of the claimed polyol A and a blocked polyisocyanate (Ans. 3). The Examiner acknowledges that Blum's list of exemplary blocked polyisocyanates does not include the specific pyrazole-blocked polyisocyanate required by claim 1 (Component B). However, the Examiner finds that such pyrazole-blocked polyisocyanates were known in the art as evidenced by Hughes (Ans. 4-5). The Examiner concludes that it would have been obvious to one of ordinary skill in the art to select a pyrazole blocking agent for use in the Blum composition to obtain the benefit of its lower deblocking temperature, a benefit expressly taught by Hughes (Ans. 5).

Claim 1 also recites that the polyisocyanate B is added to the polyol A before the conversion thereof to the aqueous phase. The Examiner finds that Blum teaches or suggests the claimed order of addition in column 7, lines 16-19 (Ans. 4).

Appellants do not dispute that Blum teaches claimed component A and Hughes teaches claimed component B, nor do they dispute that it would have been obvious to one of ordinary skill in the art to mix those two components to obtain a physical mixture of the two present in the form of a

dispersion in water as claimed. Rather, Appellants contend that, contrary to the finding of the Examiner, Blum does not teach the order of addition of the components A and B as required by claim 1, i.e., the addition of polyisocyanate B to polyol A before the conversion thereof to the aqueous phase; according to Appellants, one skilled in the art would not interpret column 7, lines 16-19 in the manner suggested by the Examiner (Br. 8-9). Appellants further contend that the Melchoirs Declaration filed April 10, 2006 (4<sup>th</sup> Declaration) establishes that “at the time of the present invention aqueous dispersions were not prepared in the manner suggested by the Examiner; typically, a urethane-modified polyol was prepared in an aqueous dispersion, to which the crosslinker [polyisocyanate] was added.” (Br. 9).

Appellants also rely upon what are called the First, Second, and Third Declarations (Melchoirs Declaration filed Jul. 1, 2004 (1st Declaration); Melchoirs Declaration filed Mar. 21, 2005 (2nd Declaration); and Melchoirs Declaration filed Nov. 15, 2005 (3rd Declaration)) to rebut the prima facie case of obviousness (Br. 8).

The issues on appeal arising from these contentions are: (1) Have Appellants shown that the evidence fails to support the prima facie case of obviousness; or (2) have Appellants overcome the prima facie case of obviousness with an adequate showing of secondary considerations?

We answer both questions in the negative.

In reviewing these questions, it is important to understand the scope of claim 1. The claim is directed to a composition comprising a physical mixture of two components (polyol A and polyisocyanate B) present in the form of a dispersion in water. The order of mixing components A and B is only relevant in so far as the difference in mixing sequence results in a

patentable difference in the resulting composition. “[I]t is the patentability of the *product* claimed and *not* of the recited process steps which must be established.” *In re Brown*, 459 F.2d 531, 535 (CCPA 1972).

Turning first to Blum, we determine that the reference as a whole does not particularly favor any order of addition over another, and that it suggests mixing components a) and b) before preparing the aqueous dispersion. Specifically, Blum states: “The binder compositions according to the invention or aqueous dispersions prepared therefrom may be prepared simply by mixing the individual components a), b) and c).” (Blum, col. 7, ll. 16-19). The first portion of the statement, i.e., “the binder composition according to the invention or aqueous dispersions prepared therefrom,” conveys that the aqueous dispersion can be prepared from the binder composition. The binder composition is the mixture of components a), b), and optionally c) (Blum, col. 2, ll. 16-27; col. 3, ll. 27-33), and is characterized elsewhere in Blum as a “water-dispersible binder composition” (Blum, col. 2, ll. 16-17). Blum, therefore, conveys a method of mixing a) and b) to form a binder composition and then dispersing that composition in water.

Appellants contend that the above reproduced sentence “is only one sentence in a disclosure which is otherwise completely directed to methods of creating a composition in which the cross-linker is added after creation of the dispersion” and “[o]ne skilled in the art would not interpret the cited sentence in the manner suggested by the Examiner, based on a reading of the patent as a whole.” (Br. 8). We cannot agree. We find no portion of Blum contradicting the statement that the composition can be prepared simply by mixing the individual components and then dispersing in water as suggested

in column 7, lines 16-19. The examples merely set forth sample processes, and one of ordinary skill in the art would recognize that the preparation methods are not limited to what is exemplified, this is particularly so in view of the disclosure in column 7, lines 16-19. Nor do the other portions of Blum's disclosure teach something contradicting what is stated in column 7, lines 16-19. In the Summary at column 2, line 41 to column 3, line 19, Blum describes a process in which the polyol is created in two steps and water is added in a third step. However, the timing of the addition of the polyisocyanate crosslinker is not disclosed: Blum simply discusses concentration stating that "the crosslinker resin component b) is added so that a ratio by weight of components a) and b) of 65:35 to 95:5 is maintained." (Blum, col. 3, ll. 13-15). Timing is then discussed only in terms of neutralizing with ammonia or an amine, this being optionally conducted after the third step (Blum, col. 3, ll. 15-19). The detailed description mirrors the disclosure in the Summary, also being silent as to the timing of the addition of polyisocyanate; it merely stating that the binder compositions, in addition to the resin a), "contain crosslinker resins b) in the quantities previously set forth" (Blum, col. 6, ll. 7-10), and then disclosing what polyisocyanates are suitable for use (Blum, col. 6, ll. 58), and explaining that the neutralization may take place before or after adding water (Blum, col. 5, ll. 33-36 and 44-47). Even if these portions of Blum are read as requiring a particular timing of addition for polyisocyanate, no portion of Blum clearly requires such timing nor contradicts the statement in column 7, lines 16-19 suggesting mixing a) and b) before dispersing the mixture in water.

Appellants contend that the sentence in Hughes: “These paints are usually composed of a pigment dispersed in an aqueous dispersion of a resin containing active hydrogen **which is to be crosslinked by the polyisocyanate**” (Br. 10 quoting Hughes, p. 4, ll. 4-5 with emphasis added), “indicates that Hughes shows addition of the blocked cross-linker after the creation of the dispersion” (Br. 10). We cannot agree. This is because crosslinking does not occur upon the addition of the polyisocyanate crosslinker to the mixture, it only occurs after the dispersion is heated in the stoving process. During stoving, the blocked polyisocyanates dissociate so that the blocking agent is removed and the isocyanate groups become available for crosslinking (Hughes, p.2, ll. 5-18). Crosslinking, therefore, occurs only after an article is coated and the coating heated to release the isocyanate groups (Hughes, p. 4, ll. 13-21). The words, “is to be crosslinked” say nothing with regard to the order of addition of the dispersion components.

According to the 4<sup>th</sup> Melchior's Declaration, at the time of the invention, aqueous dispersions were not prepared in the claimed order of addition, rather “the urethane-modified polyol was prepared in an aqueous dispersion, to which the crosslinker was added. This is the method shown in the examples of Blum.” (4<sup>th</sup> Dec. 2 at ¶ 5). But Appellants do not provide any convincing objective evidence in support of this statement. We have accorded appropriate weight to this statement, but because we find little evidentiary support for it, we do not find it sufficient to overcome the evidence in Blum to the contrary (Blum, col. 7, ll. 16-19). *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978) (considering the nature of the matter sought to be established as well as the strength of the opposing evidence in

assessing the probative value of expert opinion); *In re Altenpohl*, 500 F.2d 1151, 1158 (CCPA 1974) (lack of factual support rendered an affidavit of little probative value in overcoming obviousness rejection); *In re Lindell*, 385 F.2d 453, 456 (CCPA 1967) (Although an affiant's or declarant's opinion on the ultimate legal issue is not evidence in the case, “some weight ought to be given to a *persuasively supported statement* of one skilled in the art on what was not obvious to him.” (emphasis added)).

We determine that Appellants have not uncovered a reversible error with respect to the Examiner’s finding that Blum would suggest to one of ordinary skill in the art adding the polyol a) and polyisocyanate b) (components A and B of claim 1) before converting to the aqueous phase. Nor have Appellants adequately rebutted this finding. Accordingly, we find that the totality of the evidence weighs in favor of the Examiner’s obviousness determination.

Appellants also present comparative evidence (1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> Declarations) to show that the order of addition of the pyrazole-blocked polyisocyanate is critical, and it “is not possible to obtain a stable dispersion based on polyisocyanates which are blocked with pyrazole derivatives, if . . . the blocked cross-linker is added after the creation of the dispersion.” (4<sup>th</sup> Dec. ¶ 8). This raises the question of whether Appellants have overcome the *prima facie* case of obviousness with an adequate showing of secondary considerations, i.e., criticality.

Once a *prima facie* case of obviousness is established, the burden of coming forward with evidence and argument in rebuttal is shifted to appellants. See *In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984). This burden requires the evidence of non-obviousness be truly comparative, and

not lost in a “welter of unfixed variables.” *In re Dunn*, 349 F.2d 433, 439 (CCPA 1965). Moreover, Appellants must adequately explain what facts or data they are relying upon to show criticality. A mere pleading unsupported by proof or showing of facts is inadequate. *In re Borkowski*, 505 F.2d 713, 718 (CCPA 1974).

Appellants do not explain in the Brief, nor does Melchior explain in the Declarations, how the data demonstrates the criticality of the order of addition. Looking to the 1<sup>st</sup> Declaration, we find unaccounted for differences between the components, concentrations, and process parameters between the inventive and comparative examples. For instance, Part II) (Inventive example) uses 22.6 % adipic acid whereas Part III) (comparative example) uses 18 mol % phthalic anhydride, the temperatures and catalysts also differ. Moreover, the comparison is further complicated by the fact that the scale of the processes is different, and parameters are reported using different units. The 2<sup>nd</sup> and 3<sup>rd</sup> Declarations present data for aromatic polyisocyanates as opposed to the aliphatic polyisocyanates of the 1<sup>st</sup> Declaration. And Appellants fail to explain what is comparative: All the examples of the 2<sup>nd</sup> and 3<sup>rd</sup> Declarations are within the scope of what is claimed. For the reasons discussed by the Examiner, we also agree that the evidence of non-obviousness is not commensurate in scope with the claims which the evidence is offered to support. *In re Greenfield*, 571 F.2d 1185, 1189 (CCPA 1978). We cannot say that the comparison is adequate to support Appellants’ pleading of criticality.

Moreover, we note that the Specification provides some evidence that it is the emulsifying effect of the urethane-modified polyol, the polyol component known in the prior art as evidenced by Blum, that results in

increased emulsion stability. Appellants state that their compositions are storage-stable because:

Surprisingly, it was found that polyisocyanates blocked with pyrazole derivatives can be dispersed in a stable manner in water with the aid of polyols containing urethane groups. In this case, the polyols according to the invention and containing urethane groups fulfil [sic] the function of an "emulsifier" for the polyisocyanates blocked with pyrazole derivatives. At the same time, however, the polyols containing urethane groups are reactants for the blocked polyisocyanates. After the blocking agent has been split off at elevated temperature, the OH groups crosslink with the functional groups of the polyisocyanate crosslinking agents then liberated.

(Specification 2:12-21). Blum's urethane-containing polyols also serve as an emulsifier for polyisocyanate. As stated in Blum: "The crosslinker resins b) may be water-dilutable or water-dispersible substances, although hydrophobic substances which cannot be dispersed in water on their own may also be used as the crosslinker resins. This is because the urethane-modified polyester resins a) can perform the function of an emulsifier for the crosslinker resin b)." (Blum, col. 6, ll. 11-17.)

The totality of the evidence supports the Examiner's conclusion of obviousness.

### III. DECISION

The decision of the Examiner is affirmed.

### IV. TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal maybe extended under 37 C.F.R. § 1.136(a)(1)(iv).

Appeal 2007-3742  
Application 09/928,853

AFFIRMED

PL initials:  
sld

BAYER MATERIAL SCIENCE LLC  
100 BAYER ROAD  
PITTSBURGH, PA 15205